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EXAMINER

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/724,426  
Filing Date: November 26, 2003  
Appellant(s): ZHONG ET AL.

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Peter Malen, Jr.  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 10/16/07 appealing from the Office action mailed 12/11/06.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,871,022	Xu	3-2005
6,278,818	Laming et al.	8-2001

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 6-11 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Number 6,871,022 to Xu, and further in view of United States Patent Number 6,278,818 to Laming et al.

Xu discloses in figures 6, 16A-B, and 19A-B, an optical add/drop module for adding or dropping one or more channels from a wavelength division multiplexed (WDM) signal, the optical add/drop module comprising:

- A drop portion comprising a plurality of thin film filters, wherein each thin film filter drops a particular channel from a WDM signal (dichroic thin film devices are disclosed);
- An add portion that adds channels of the WDM signal dropped by the drop portion back to the WDM signal, wherein the add portion comprises:
  - A first stage of interleavers; and
  - A final stage including a thin film interleaver, wherein the thin film interleaver has a flat-top frequency response (column 12, lines 9-26). Xu describes in figure 10 that a dichroic thin film device (1045).

Column 4, lines 49-51 further define this figure to be “a block diagram of an **interleaver** performing an **add/drop** function...” (emphasis added). Column 13, lines 38-53 provide further detail as to how the interleaver functions as an add/drop module.

As to claims 7-8, an add/drop module with a thin-film interferometer would inherently be able to add or drop particular channels.

As to claim 9, light is reflected and transmitted in multiple vectors.

As to claim 10, multiple channels are used.

As to claim 11, flat-top frequency response is optimized.

As to claim 13, channel isolation and suppressed crosstalk is achieved (figure 23 of the Xu reference where a description of a cascaded interleaver functions to suppress crosstalk. This suppression of crosstalk isolates channels).

As to claim 14, optical spacers are used to construct the WDM interleaver.

However, Xu fails to explicitly disclose the use of a “fused fiber” interleaver, but does disclose that interleavers are conventionally made by fusing together two optical fibers (figure 2 and description).

Laming teaches a channel add/drop multiplexer using a fused optical fiber coupler to extract (drop) a specified wavelength.

Since Xu and Laming are both from the same field of endeavor, the Laming reference would have been recognized in the pertinent art of Xu.

Since both fused fiber interleavers and the interleavers of Xu are both widely used in the art, there would be a reasonable expectation of success by replacing one known component with another for the purposes of reducing size. Further, it would have been obvious to one having

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ordinary skill in the art at the time the invention was made to use the fused optical fibers of Laming as the interleavers of Xu for the motivation of reducing cost, bulk and to lower insertion losses.

3. Claims 15-21, and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu as applied to claims above, and further in view of applicant's disclosure of prior art.

Xu discloses a thin film based add/drop optical module using interleavers, but fails to explicitly disclose the method of Coarse Wavelength Division Multiplexing (CWDM).

Applicant discloses in the background of the invention that WDM, DWDM and CWDM are commonly used in the art of multiplexing in order to increase bandwidth using multiple interleavers.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the WDM of Xu to allow for use with a CWDM signal disclosed by applicant as a matter of obvious design choice based on its intended use and to increase bandwidth for the module of Xu.

#### **(10) Response to Argument**

1. Applicant's arguments regarding claim 6.

In response to Applicant's argument that the Examiner has failed to identify which portions of the Xu reference relate to the claimed limitations, the Office submits that by citing figures (in this case Figures 6, 16A-B and 19A-B), each and every component in said figures are disclosed and identified. Applicant has selectively noted the Examiner's response to arguments from the final office action dated 12/11/06, stating Examiner has failed to specifically identify

components. The Office submits that specific parts were identified by citing the figures, and further in the response to arguments:

In regards to the claim group 6-11 and 13-14, Applicant argues that the Examiner relies on little more than a single vague reference to Xu figures to support the rejection of claims 6-11 and 13-14.

Applicant points out this vagueness with respect to the add/drop portions of the invention. Examiner respectfully disagrees. Examiner believes that while terse, the indication of figures is appropriate. As one of ordinary skill in the optical multiplexing or demultiplexing art would be able to determine, for example, in figure 19A, that an add/drop function is taking place.

If one was not able to see this clearly, column 4, lines 49-51 further define this figure to be “a block diagram of an **interleaver** performing an **add/drop** function...” (emphasis added).

If one was still unclear as to the function of the structure disclosed in figure 19A, column 13, lines 38-53 provide further detail as to how the interleaver functions as an add/drop module.

4. Applicant further argues as an example, assertion that channel isolation and suppressed crosstalk by the Examiner lacks evidence. Examiner respectfully disagrees. Again, one skilled in the art would recognize that an interleaver inherently would isolate channels and suppress crosstalk.

If one was not able to see this clearly, one could refer to figure 23 of the Xu reference where a description of a cascaded interleaver functions to suppress crosstalk. This suppression of crosstalk isolates channels.

Applicant further argues that the cited portions of Xu and Laming fail to disclose an “optical add/drop module” as claimed. The Office submits that the figures relied upon in the Final Rejection describe add/drop functions and thus is an add/drop module. Further, interleavers are disclosed, and the interleavers function to add/drop certain channels of a WDM signal. Each stage of the interleavers add or drop pre-determined channels.

Applicant further argues the Examiner has failed to establish there is some suggestion or motivation, particularly that the references teach away from each other. The Office submits that one having ordinary skill in the art would have a reasonable outcome of success by using fused fiber interleavers disclosed by Laming for the interleavers of Xu. Fused fiber interleavers are well known in the art, and Laming is one such example. As noted in the Final Office action, one such motivation would be to reduce device size by using fused fiber interleavers.

2. Applicant’s arguments regarding claims 7-11, 13 and 14.

Applicant argues the Examiner has failed to identify components as claimed and as discussed with respect to claim 6. The Office submits that the limitations are disclosed as discussed above with respect to claim 6.

3. Applicant’s arguments regarding claim 15.



Applicant argues the Examiner has failed to identify components as claimed and as discussed with respect to claim 6. The Office submits that the limitations are disclosed as discussed above with respect to claim 6.

4. Applicant's arguments regarding claims 16-21, 23 and 24.

Applicant argues the Examiner has failed to identify components as claimed and as discussed with respect to claim 6 and 15. The Office submits that the limitations are disclosed as discussed above with respect to claim 6 and 15.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

//Eric Wong//

Examiner, 2883

Conferees:

//Frank Font//

//David S. Blum//